

10/666,203

REMARKS

Claims 1-23 are pending in this application, with claims 2-4 and 7-23 being withdrawn from consideration. Claims 1, 5 and 6 are rejected under 35 USC 112, second paragraph, as being indefinite. Claim 1 is rejected under 35 USC 102 as being anticipated by Turchan. Claims 1, 5 and 6 are rejected under 35 USC 103 as being unpatentable over Miglietti in view of Linden.

Claims 10-23 are cancelled herein.

Claim 1 has been amended to clarify the size limitation applies to the filler particles, thereby overcoming the rejections under 35 USC 112.

Claim 1 has also been amended to include the limitation that the filler particles are a superalloy material, and that the superalloy filler particles comprise a first portion of nano-sized particles and a second portion of micron-sized particles. Miglietti describes a low temperature brazing paste (e.g. as low as 100-200 °C. per column 4, line 12) that does not include a superalloy material and that does not include both nano-sized and micron-sized particles of filler material. Thus, the rejection of claim 1 under 35 USC 102 has been overcome.

The applicant also traverses the claim rejections under 35 USC 103. Amended claims 1, 5 and 6 include limitations that are not taught or suggested by the combination of Miglietti and Linden. The Examiner states that Miglietti teaches a braze material that is substantially free from melting point depressants, relying on the statement of column 3, lines 50-65. However, the material being described at that section of Miglietti is the bottom layer of higher melting temperature alloy powder 14 which is not the braze material. Miglietti describes a process for diffusion bonding of gaps wherein a low melting point braze 16 is applied over a layer of a higher melting temperature nickel-based or cobalt-based alloy powder 14. It is the bottom layer of alloy powder 14 that Miglietti describes at column 3, lines 50-65 as being "similar in composition to the substrate and substantially free from melting point depressants." By contrast, the top layer is the braze material 16 and it contains 1.2% to 1.7% boron as a melting point depressant (column 5, line 6). Thus, Miglietti fails to describe a braze material that is substantially free of melting point depressant, and thus there is no motivation for the

10/666,203

combination of Miglietti and Linden as suggested by the Examiner, and the rejection of claims 1, 5 and 6 is not supported by the cited prior art.

In addition, amended claim 1 includes the limitation that the superalloy filler particles comprise a first portion of nano-sized particles and a second portion of micron-sized particles. Neither Miglietti nor Linden includes such teaching, and the combination of these two references fails to produce the claimed invention, thereby providing a further basis for the allowance of independent claim 1.

Dependent claim 5 has been amended to include the limitation of "braze alloy particles having a melting point temperature below that of a bulk melting temperature of the superalloy material of the micron-sized superalloy filler particles and above that of the nano-sized superalloy filler particles." This amendment is supported in the specification at page 4, line 29 through page 5, line 12. This range of melting point temperatures advantageously allows a brazing temperature to be selected whereat the braze alloy particles and the nano-sized superalloy filler particles will melt but whereat the micro-sized superalloy filler particles will not melt. This combination allows the larger micro-sized particles to sinter together without undergoing any chemical/mechanical change, thereby ensuring that the properties of the brazed joint will be comparable to those of the original filler material without risking degradation caused by alloying with the lower strength braze alloy particles as is known in the art. Nothing in the prior art teaches or suggests this unique combination of particle sizes and melting temperatures, thereby providing an additional basis for the allowance of claims 5 and 6.

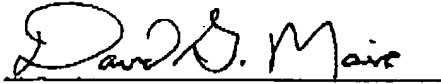
Conclusion

The applicant requests reconsideration of the amended application in light of the above amendments and remarks. Upon the allowance of generic claim 1, consideration of the withdrawn claims and allowance of claims 1-9 is respectfully requested.

10/666,203

The Commissioner is hereby authorized to charge any appropriate fees due in connection with this paper or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

A handwritten signature in black ink, reading "David G. Maire". The signature is fluid and cursive, with the first name "David" and last name "Maire" clearly legible. The middle initial "G." is smaller and less distinct. The signature is written on a horizontal line.

David G. Maire (Reg. No. 34,865)

Beusse Wolter Sanks Mora & Maire, P.A.
390 North Orange Ave., Suite 2500
Orlando, FL 32801
Telephone: 407-926-7704